DEFENDER™
SECURITY

USER MANUAL

Model #82-12475

4 CHANNEL DIGITAL VIDEO RECORDER

INSTRUCTION MANUAL

For best results, please read this instruction manual completely before installing your new DVR.

FCC Compliance

USER-INSTALLER CAUTION: YOUR AUTHORITY TO OPERATE THIS FCC VERIFIED EQUIPMENT COULD BE VOIDED IF YOU MAKE CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE TO PART 15 OF THE FCC RULES.

NOTE: THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

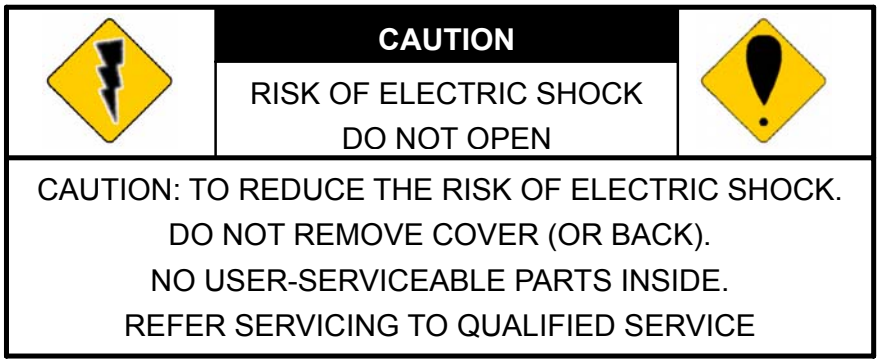
OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

THIS CLASS A DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

WARNINGS, CAUTIONS & COPYRIGHT

WARINGS
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MISTURE.
DO NOT INSERT ANY METALLIC OBJECT THROUGH VENTILATION GRILLS.

CAUTION


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE

Explanation of Graphical Symbols

	The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of insinuated "dangerous voltage" within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral rhombus is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the product.

USERS OF THE SYSTEM ARE RESPONSIBLE FOR CHECKING AND COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND STATUTES COIPCERNING THE MONITORING AND RECORDING OF VIDEO AND AUDIO SIGNALS. ULTRAK SHALL NOT BE HELD RESPONSIBLE FOR THE USE OF THIS SYSTEM IN VIOLATION OF CURRENT LAWS AND STATUTES.

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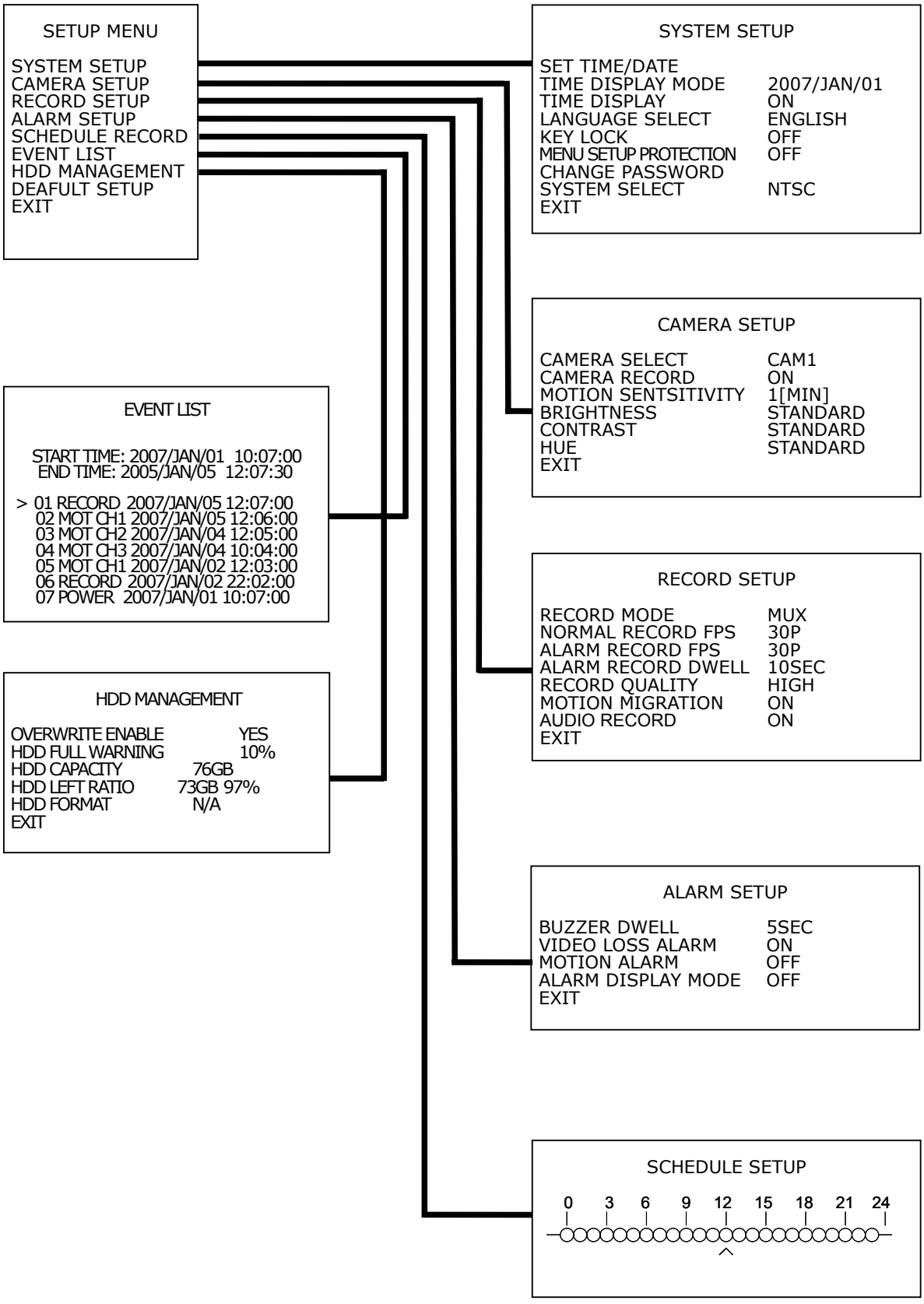
SETUP MENU LIST



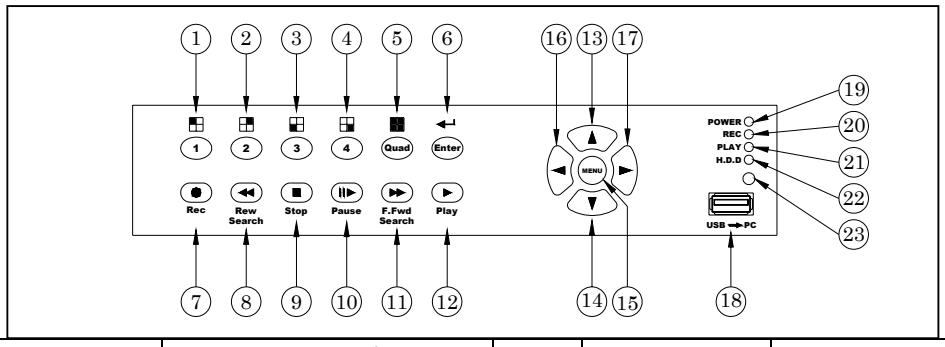
1. INTRODUCTION

This product is a 4 camera input appliance with multiple features and functions:

- **Live display, play back and video recording capabilities.**
- **Reliable stand-alone operation (on-board OS).**
- **M-JPEG compression technology**
- **Standard analog camera support with BNC composite video connection ports**
- **Multi-speed recording selection on normal recording mode or alarm recording mode (max 30fps in both modes).**
- **Individual camera adjustments for contrast, hue and brightness**
- **Support for up to 500GB HDD (on-screen compatibility status indicator).**
- **Selectable recording resolutions (best/high/medium/low).**
- **Manual or motion-activated recording.**
- **Motion detection sensitivity adjustment for each camera channel.**
- **Playback of recorded footage can be searched by time or by event list.**
- **Multiple playback modes to review recorded video (rewind at up to ×32, and fast-forward up to ×4, ×8, and ×16).**
- **Forward search payback mode facilitates field by field pause.**
- **OSD (on screen display) menu for easy operation and setting modifications.**
- **On-screen storage capacity indicator and HDD selectable overwrite.**
- **System will restore the previous setting and continue camera activity after restart.**
- **Support PC Link backup via USB connector.**
- **NTSC/PAL switching by OSD menu.**
- **Advanced buzzer control.**

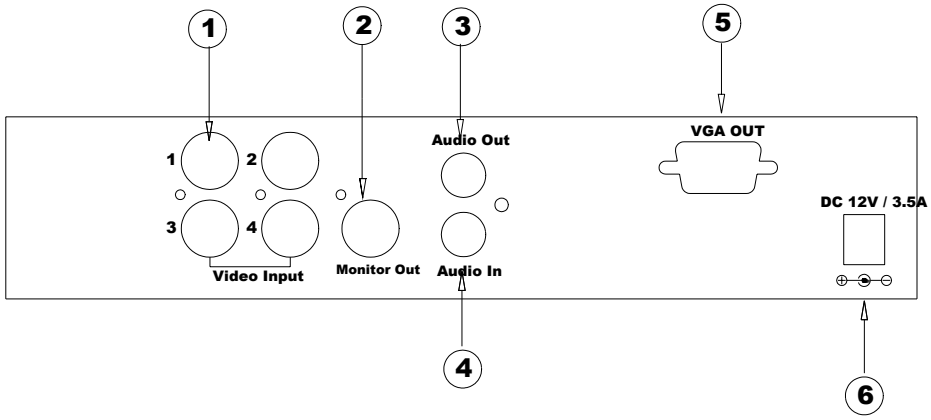
2. HARDWARE OVERVIEW

Front Panel Overview



Part	Label	DVR Function	Part	Label	DVR Function
1	1	Channel 1 Full screen & number 1.	2	2	Channel 2 Full screen & number 2.
3	3	Channel 3 Full screen & number 3.	4	4	Channel 4 Full screen & number 4.
5	Quad	Quad screen: All cameras are displayed.	6	ENTER	Select MENU option
7	Rec	Recording button.	8	Rew Search	Up to ×32 fast rewind
9	Stop	Press Stop to stop playback or recording.	10	Pause	Pause & Picture by Picture forward.
11	F.Fwd Search	From ×4, x8, ×16 fast forward.	12	Play	Play button & get into quick time search.
13	▲	Move upward or increase the number.	14	▼	Move downward or decrease the number.
15	MENU	Press MENU to go into or exit menu.	16	◄	Move to left or decrease the number
17	►	Move to right or increase the number.	18	USB → PC	USB connector for image backup using PC software
19	POWER	Power status LED.	20	REC	Recording status LED.
21	PLAY	Playback status LED.	22	H.D.D	H.D.D LED
23	IR Receiver	Accept IR Remote Controller			

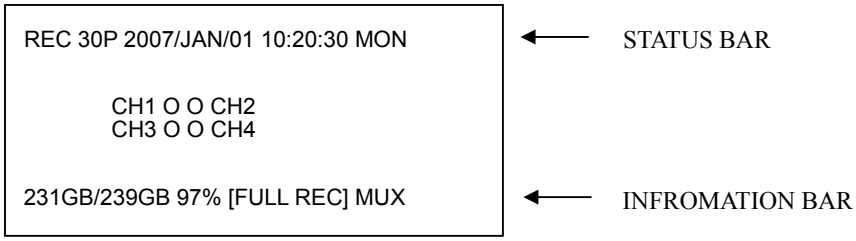
Back Panel Overview



Part	Label	Function
1	CAM1, 2, 3, 4	Cameras 1, 2, 3, and 4 video input BNC connector.
2	MONITOR OUT	Composite video output BNC connector.
3	AUDIO OUT	Connect to audio output (Optional)
4	AUDIO IN	Connect to audio input (Optional)
5	VGA OUT	Connect to CRT or LCD monitor. (Option)
6	POWER CONNECTOR	DC12V Power Adaptor in.

3. SETUP PROCEDURES

LIVE VIEWING

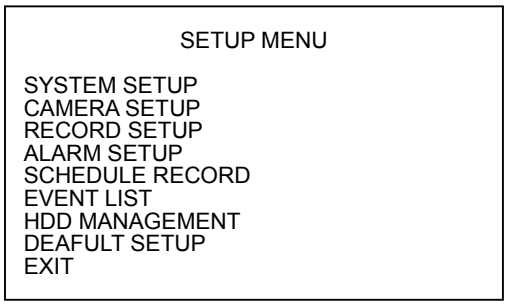


STATUS BAR - Press ▲ button to move from top to bottom, or down a line. Recording FPS will be displayed on the left upper corner.

INFORMATION BAR - Press ▼ button to move from bottom or to move up a line, or use ◄ or ► buttons to change information between HARD DISK STATUS, RECORDING MODE or AUDIO RECORDING STATUS.

Note: Live viewing will resume after two minutes of MENU mode inactivity. If full-time or alarm recording is set, recording will automatically resume after 5 seconds of inactivity in the MENU viewing mode.

MAIN SETUP MENU



Press the **MENU** button to access the main menu.

Use the ▲ or ▼ button to select items.

Press the ◄ or ► button to confirm the selection.

Press **MENU** again to exit the SETUP mode.

3.1 SYSTEM SETUP

System set up.

3.2 CAMERA SETUP

Camera set up.

3.3 RECORD SETUP

Recording set up.

3.4 ALARM SETUP

Alarm set up.

3.5 SCHEDULE RECORD

Schedule recording set up

3.6 EVENT LIST

Recording event list

3.7 HDD MANAGEMENT

Hard disk management

3.8 DEAFULT SETUP

Return to factory setting

3.9 EXIT

Escape from the setup menu

3.1 SYSTEM SETUP

SYSTEM SETUP	
SET TIME/DATE	
TIME DISPLAY MODE	2007/JAN/01
TIME DISPLAY	ON
LANGUAGE SELECT	ENGLISH
KEY LOCK	OFF
MENU SETUP PROTECTION	OFF
CHANGE PASSWORD	
SYSTEM SELECT	NTSC
EXIT	

Press ▲ or ▼ buttons in "SYSTEM SETUP" & ◄ or ► to enter:

Use the ▲ or ▼ button to select items.

Press the ◄ or ► button to confirm the selection.

Press MENU back to SETUP MENU.

A. SET TIME/DATE

Use ◄ or ► button to move, ▲ or ▼ button to setdate & time. Use **MENU** key to return to setup menu.

B. TIME DISPLAY MODE

Use ◄ or ► button to set YY/MM/DD, MM/DD/YY or DD/MM/YY.

C. TIME DISPLAY ON/OFF

Use ◄ or ► button to change time display ON or OFF.

D. LANGUAGE SELECT ENGLISH

Use ◄ or ► button to change language.

E. KEY LOCK ON/OFF

Use ◄ or ► button to change ON or OFF.

F. MENU SETUP PROTECT ON/OFF

Use ◄ or ► button to change ON or OFF.

G. CHANGE PASSWORD

Key in password (see example below) with following sequence CURRENT PASSWORD -> NEW PASSWORD -> CONFIRM PASSWORD**.** ***The default password is 1111***.

To use the control panel for numeric entry, refer to the example below for number button equivalents:

is "1" , is "2" , is "3" , is "4"

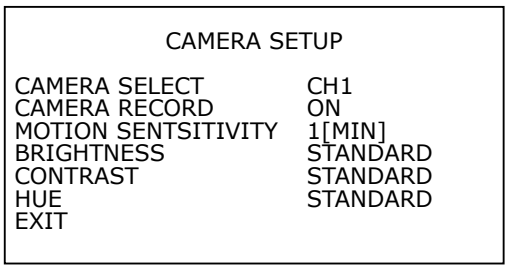
H. SYSTEM SELECT NTSC/PAL

Use ◄ or ► button to change video system to NTSC or PAL.

F. EXIT

Return to the SETUP MENU.

3.2 CAMERA SETUP



Press ▲ or ▼ key on "CAMERA SETUP" & ◄ or ► to enter:

Use the ▲ or ▼ button to select items.

Press the ◄ or ► button to confirm the selection.

Press MENU back to SETUP MENU.

A. CAMERA SELECT CAM1/CAM2/CAM3/CAM4

Use ◄ or ► button to select CH1 – CH4 cameras.

For each camera (CH1 – CH4) chosen in CAMERA SELECT:

B. CAMERA RECORD ON/OFF

Use ◄ or ► button to set recording function (ON or OFF).

C. MOTION SENTSITIVITY OFF / 1[MIN] / 2 / 3 / 4 / 5[MAX]

Use ◄ or ► button to adjust the sensitivity of the selected camera from 0 (off) to 5 (MAX).

D. BRIGHTNESS 1 / 2 / 3 / 4 /STANDARD/ 6 / 7 / 8 / 9 /10

Use ◄ or ► button to adjust the brightness of the selected camera. Initial number is 5 (STANDARD).

E. CONTRAST 1 / 2 / 3 / 4 /STANDARD/ 6 / 7 / 8 / 9 /10

Use ◄ or ► button to adjust the contrast of the selected camera. Initial number is 5 (STANDARD).

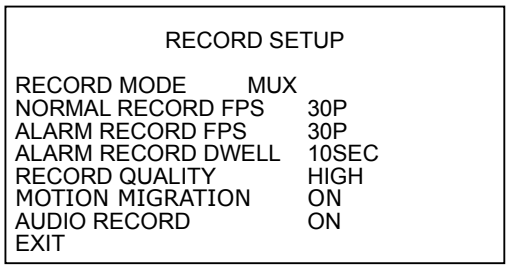
F. HUE 1 / 2 / 3 / 4 /STANDARD/ 6 / 7 / 8 / 9 /10

Use ◄ or ► button to adjust the hue of the selected camera. Initial number is 5 (STANDARD).

G. EXIT

Return to the SETUP MENU.

3.3 RECORD SETUP



Press ▲ or ▼ key on "RECORD SETUP" & ◄ or ► to enter:

Use the ▲ or ▼ button to select items.

Press the ◄ or ► button to confirm the selection.

Press MENU back to SETUP MENU.

A. RECORD MODE MUX/QUAD

Use ◄ or ► button to select MUX (multiplexer) or QD (quad) recording.

B. NORMAL RECORD FPS 1/2/3/4/5/7/10/15 & 30P

Use ◄ or ► button to select recording speed. 15P means 15 fields per second (FPS), with 30P being the highest speed, and 1P is the lowest. Choose from 1 / 2 / 3 / 4 / 5 / 7 / 10 / 15 & 30P. The NTSC default is 15P, and the PAL default is 12P.

C. ALARM RECORD FPS 1/2/3/4/5/7/10/15 & 30P

Use ◄ or ► button to select the alarm recording speed when external alarm or motion detection is triggered. Choose from 1 / 2 / 3 / 4 / 5 / 7 / 10 / 15 & 30 FPS (Frames per Second); NTSC default 30P, PAL at 25P.

D. ALARM RECORD DWELL 1~30SEC

Use ◄ or ► button to set the dwell time for alarm recording when motion detection is triggered. There are a total of 30 speeds from which to choose (1 to 30). When motion is triggered within the dwell period the screen will switch to quad mode. The corresponding camera will indicate MOT (Motion) on-screen. The default dwell time is 10 seconds..

E. RECORD QUALITY (BEST/HIGH/MEDIUM/LOW)

Use ◄ or ► button to select the BEST, HIGH, MEDIUM or LOW recording quality. Note: HDD storage will be consumed at a greater rate as higher quality is chosen. Carefully consider hard disk capacity to optimize the recording quality (refer to the table on page 24 for estimated storage requirements for various quality settings).

F. MOTION MIGRATION ON

Use ◄ or ► button to select addition of detected motion to event list. The efault setting is on.

G. AUDIO RECORD ON (Optional)

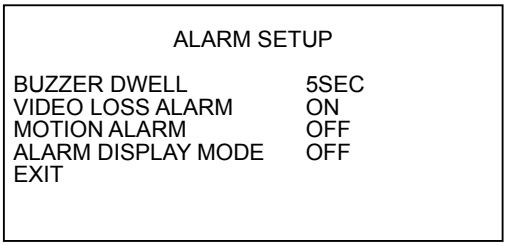
Use ◄ or ► button to switch join audio into recording or not

Suggested to use 3PPS or above to record.

H. EXIT

Return to the SETUP MENU.

3.4 ALARM SETUP



Press ▲ or ▼ key on "ALARM SETUP" & ◄ or ► to enter:

Use the ▲ or ▼ button to select items.

Press the ◄ or ► button to confirm the selection.

Press **MENU** to go back to SETUP MENU.

A. BUZZER DWELL 1/2/3 to 30 SEC & CONT

Use ◄ or ► button to turn dwell buzzer on or off. There are a total of 31 periods you can choose from (1 to 30 seconds), or choose "CONT" for constant.

B. VIDEO LOSS ALARM ON/OFF

Use ◄ or ► button to select video loss alarm function on or off.

C. MOTION ALARM ON/OFF

Use ◄ or ► button to switch function on or off when motion occur.

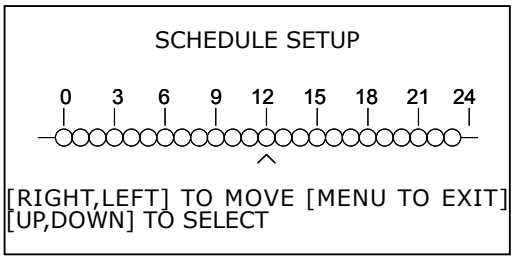
D. ALARM DISPLAY MODE ON/OFF

During regular recording and full channel display, if the ALARM DISPLAY MODE is ON, system will switch to the ALARM or MOTION channel (the DWELL period will determine the alarm channel display length).

E. EXIT

Return to the SETUP MENU.

3.5 SCHEDULE RECORD



Press ▲ or ▼ key on "SCHEDULE RECORD" & ◄ or ► to enter:

Use the ◄ or ► button to select items.

Press the ▲ or ▼ button to confirm the selection.

Press **MENU** to go back to SETUP MENU.

Note: Each circle in the SCHEDULE SETUP table represents each hour in a 24 hour period. Every circle has 3 options to select:

O : represents "full recording"

X : represents "no record"

A : represents "alarm record" (typically chosen for motion-only recording)

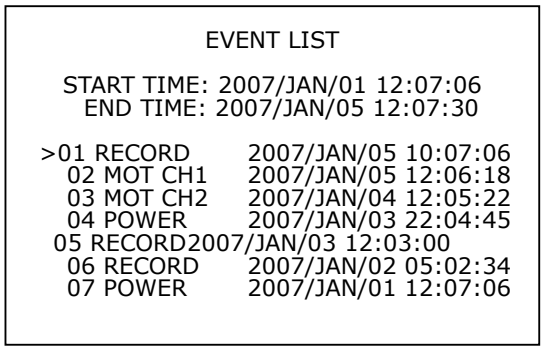
Use the ◄ or ►button to select hours.

Press ▲ or ▼ button to select the **O / X / A** (Constant record / No recording / Alarm Record).

QUICK KEY:

► **Play** Use the Play button on the control panel while in the SCHEDULE SETUP mode to set ALL 24 periods to either **O** / **X** / **A**.

3.6 EVENT LIST



Press ▲ or ▼ key on "EVENT LIST" & ◄ or ► to enter:

Use the ◄ or ► button to select items.

Press the ▲ or ▼ button to confirm the selection.

Press MENU back to SETUP MENU.

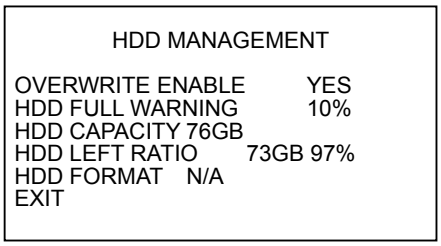
Use "▲ or ▼"buttons to move to the desired event for playback (note: the location of **" > "** symbol will move up and down to indicate the current event selected.

Press "◄ or ►" button to select the chosen event footage and press **►PLAY** to start playback.

3 different types of events are recorded:

1. A "RECORD" event – This event is captured when manual recording is selected using the "REC" button on the front panel, or if the CONSTANT recording ("O") selection in the SCHEDULE SETUP menu for specific periods.
2. A "POWER" event – In the event of a power loss, the system will add record the event as a "POWER ERROR DETECTED" and will show it on screen during reboot.
3. A "MOT CHx" event – This event is captured when motion detection recording is triggered (note: the "MOTION EVENT MIGRATION" setting in the RECORD SETUP menu must be turned "ON")**.**

3.7 HDD MANAGEMENT



Press ▲ or ▼ key on "HDD MANAGEMENT" & ◄ or ► to enter:

Use the ◄ or ► button to select items.

Press the ▲ or ▼ button to confirm the selection.

Press **MENU** back to SETUP MENU.

A. OVERWRITE MODE YES (YES/NO)

Use "◄ or ►" button to enable or disable overwriting when HDD is full. When HDD overwrite is enabled, the oldest partition on HDD will automatically be reused, and the oldest images will be overwritten with current images. When overwrite mode is disabled, the HDD Full Warning percentage selection will be displayed, and manual configuration is necessary to either initiate overwrite, or replace with new HDD.

B. HDD FULL WARNING 10% (5% / 10% / 15% / 20%)

Use "◄ or ►" button to select one of the four settings (5% / 10% / 15% / 20%). The default is 10%. A buzzer will sound a warning signal when the hard drive reaches the specified storage % level.

C. HDD CAPACITY 76GB

The HDD capacity will be indicated on the screen, it can't be revised.

D. HDD LEFT RATIO 73GB 97%

Indicates the open space remaining on the HDD in both GB and percentage values.

E. HDD FORMAT

Use "◄ or ►" button to enter the **HDD FORMAT** menu.

PASSWORD INPUT : _ _ _ _

Use the control buttons on the front panel to input the number.

is "1" , is "2" , is "3" , is "4"

When you key in the correct password, the screen will display the following message:

PASSWORD CORRECT! **HARD DISK FORMATTED**

Otherwise, the following error message will be displayed on the screen:

PASSWORD INCORRECT!

CHANGE PASSWORD:

Please refer to "SYSTEM SETUP" → CHANGE PASSWORD.

F. EXIT

Return to the SETUP MENU.

3.8 LOAD DEFAULT

ARE YOU SURE > NO YES

Press ▲ or ▼ key on "DEAFULT SETUP" & ◄ or ► to enter:

Use the ◄ or ► button to select items.

Press the ▲ or ▼ button to confirm the selection.

Press MENU back to SETUP MENU.

A. NO

Do not load default

B. YES

Use ◄ or ► button to restore the default setting.

3.9 EXIT

Exit from the **SETUP MENU**.

4. OPERATING PROCEDURES

4.1 GETTING STARTED

Please read the following instructions before you power-on the DVR:

A. If possible, always confirm the DVR is connected to a 12VDC supply:
Adapter input voltage range 100~240V, frequency range 47-63Hz.
CAUTION – Incorrect supply voltage can result in damage to the DVR.

B. Hard Disk connection: make sure the 40-Pin Hard Disk Data cable and the 4-Pin power connectors are properly connected.

4.2 RECORDING

A. Press the **● REC** key to enter the Recording Mode. Press the **■ STOP** key to stop recording.

B. The information bar will display "MUX" or "QUAD" depending on the recording mode selected in the RECORD SETUP menu (see page 11).

C. Recording frame rate (e.g., 15P) will be displayed in the top right corner.

D. In the center of the screen, the type of recording for each camera channel is displayed in the lower-left corner (e.g., "O" would signal that this camera channel is recording). For more information on Setting up Recording Mode, refer to Chapter 3 Recording Setup.

F. If there is a power failure in Recording mode the DVR settings will be automatically restored upon power-up.

4.3 PLAYBACK

1 Press the ►PLAY button to into playback mode, There are two ways for searching for video records, use "▲" or "▼" key to select a way for searching, there are two selections "TIME SEARCH" and "EVENT LIST". Arrow mark ">" indicates current selection, press "◄" or "►" key to start the search.

PLAYBACK TYPE SELECT

>TIME SEARCH
EVENT LIST
EXIT

A. TIME SEARCH

TIME SEARCH

START TIME: 2007/JAN/05 08:40:34
^

START TIME 2007/JAN/01 08:12:03
END TIME 2007/JAN/05 12:10:55

When entering "TIME SEARCH" mode, screen will indicate the earliest record on hard drive with title "START TIME" and "END TIME". Use the "◄" or "►" keys to setup condition for time search, an arrow

mark "^" will show up on corresponding location for adjustment. Use "▲ "or "▼ "keys to increases or decrease value for search condition on time or date. Press **►PLAY** key to start playing back.

B. EVENT LIST

EVENT LIST

START TIME: 2007/JAN/01 12:07:00
END TIME: 2007/JAN/05 10:47:30

> 01 RECORD 2007/JAN/05 09:07:00
02 MOT CH1 2007/JAN/04 12:06:00
03 MOT CH2 2007/JAN/04 10:05:00
04 RECORD 2007/JAN/02 22:04:00
05 POWER 2007/JAN/01 12:07:00

When entered "EVENT LIST" mode. Screen will indicates the event list on corresponding hard drive with the event type, start date & time. Use "▲"or "▼" keys to setup condition for time search, an arrow mark ">" will show up on corresponding location for adjustment. Use "▲ "or "▼"keys to select the event item, and press **►PLAY** key to start playing back.

B-1. Several ways to perform playback:

a. Press **►PLAY** button to play video forward.

b. "PLAY" sign will be indicated in top left corner on the screen.
"MUX or QUAD" sign will be indicated in top right corner on the screen, it means the recording mode you selected.

c. When playback reaches the vary end of record and **"END"**will appear.
Press **◄◄Rew Search** button to play video reverse at 16 times speed fast rewind mode.

d. Press **►►F.Fwd Search** button to play video forward at high speed. Press the button again speed will be change circulative from ×4, ×8, to the highest ×16.

e. "REW" or "FF* 4 / 8 / 16" sign will be indicated in top left corner on the screen.

f. Press **II►Pause** button to pause (field by field) for forward. This function can be used in full screen and quad mode.

g. "PAUSE" sign will be indicated in top left corner on the screen.
Press the **■STOP** button to leave playback mode and resume to Live Mode.

Attention：If you choose QUAD in recording mode than it can't playback in full single channel screen.

4.4 VGA OUTPUT

VGA output is optional, please ensure that you have proper DVR model for VGA out put installation. By D-SUB connecter to CRT or LCD monitor at 1024*768 75Hz.

5. PLAYBACK FROM USB

5.1 INTRODUCTION & SYSTEM REQUIREMENT

A. INTRODUCTION

The Defender 4-Channel DVR comes with special PC viewer software to review and capture video footage on a PC running the Win2000 or WinXP OS. Once installed on your PC, the PC viewer software (YAViewer4) recognizes the USB-connected DVR and offers several video management options including backup to a unique .MYS video file, or capturing frames to a .BMP file.

Note: The PC viewer consists of two modules:

View & Backup	Displays video stream stored on the hard drive.
MYS File Player	Plays and saves captured stream file.

B. SYSTEM REQUIREMENTS

Microsoft Windows 2000 or Later (XP, 2003).
CPU 1.0 GHz or Higher.
RAM 256 MByte or greater.
DirectX 7.0 or later.

C. INSTALLATION

Hardware Installation
With the DVR powered on, connect the USB A/A cable from your PC's USB port to the DVR's USB port.

Software Installation
To load the YAViewer4 software, simply insert the CD into your CD drive, and auto-run will display the contents of the CD in a window on your desktop. Drag (copy) the YAViewer_Eng application file to your desktop (or any location on the HDD you prefer) and double-click on that application to launch the viewer software.

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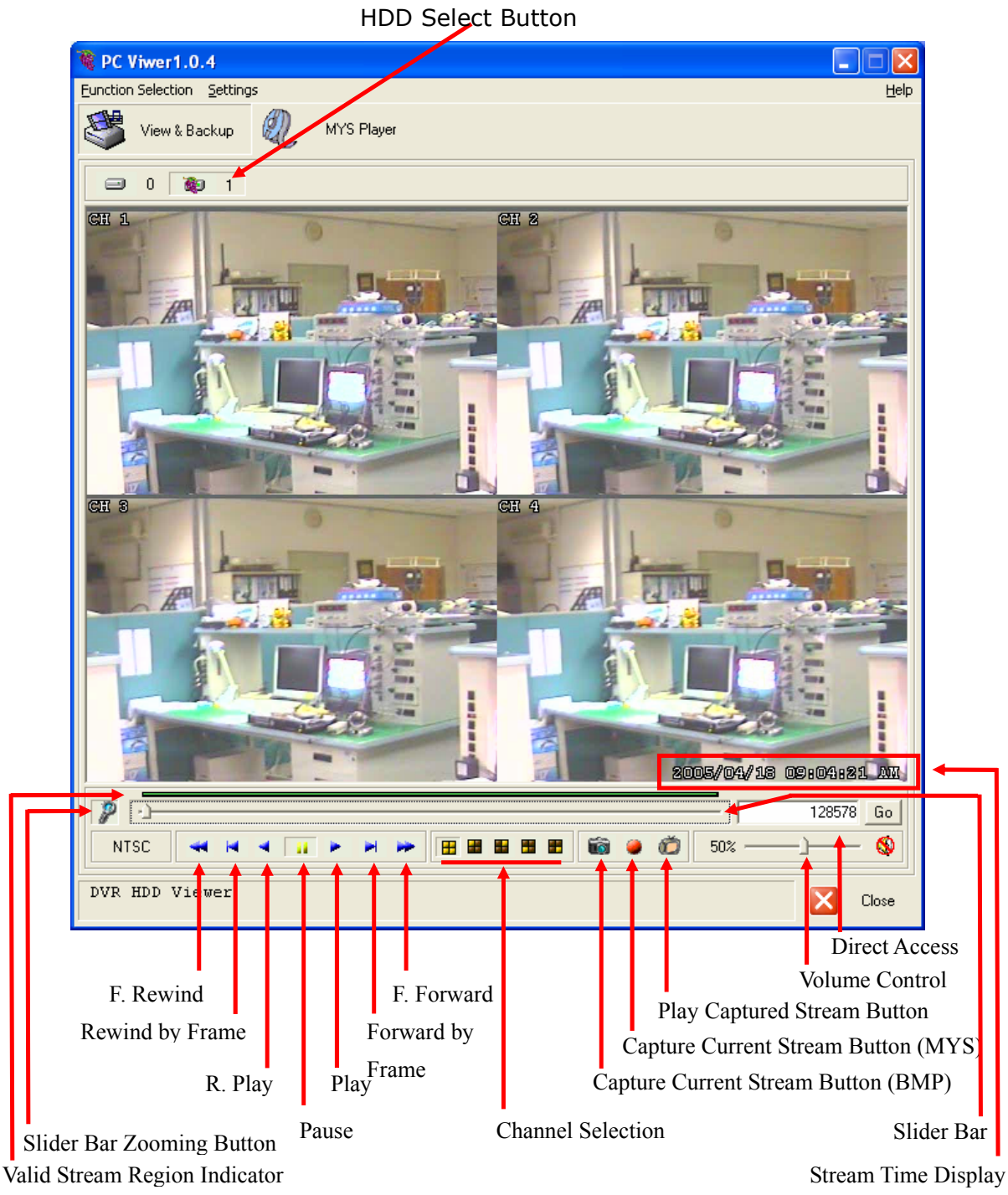
5.2 VIEW & BACKUP

A. EXECUTION

The application first initiates a HDD detection process that may take up to 1 minute.

B. USER INTERFACE

The default page of the application is DVR HDD PC Viewer. The user interface functions are described below:



C. FUNCTIONS

C-1 HDD Select Button

Once the application detects one or more HDDs, it automatically selects the first HDD. You can select any valid HDD [the HDDs with YAViewer4_Eng marked].

C-2 Valid Stream Region Indication

Once a HDD is selected, the application detects the valid stream region where valid video streams reside. The valid stream region is marked as green within the Valid Stream Region Indicator.

C-3 Slider Bar Zooming Button

If the Valid Stream Region is relatively small, you may have difficulty navigating within it. In this case, you can enlarge (magnify) the Valid Stream Region by clicking Slider Bar Zooming Button.

C-4 Playback

Once a HDD is selected, the application screen automatically displays recorder video footage from the beginning.

C-5 Channel Selection

The default screen display channel setting is ALL CHANNEL, which shows all four channels (assuming 4 channel streams from four cameras exist) at the same time. If want to see only one channel at a time select the desired channel button, accordingly.

C-6 Capture Current Stream Button (BMP)

To capture a BMP. image, press the Capture Current Screen button. This will capture the current screen and save it as BMP file to the user designated folder location in the setup settings.

C-7 Capture Current Stream Button (MYS)

To capture video streams, press Capture Current Stream button. This will record the stream you select to a .MYS file (Vineyard Technologies Format file) to the user designated folder location in the setup settings. (note: only the YAViewer application software and its .MYS player mode is capable of playing the .MYS video file.)

C-8 Play Capture Stream Button

MYS Player mode.

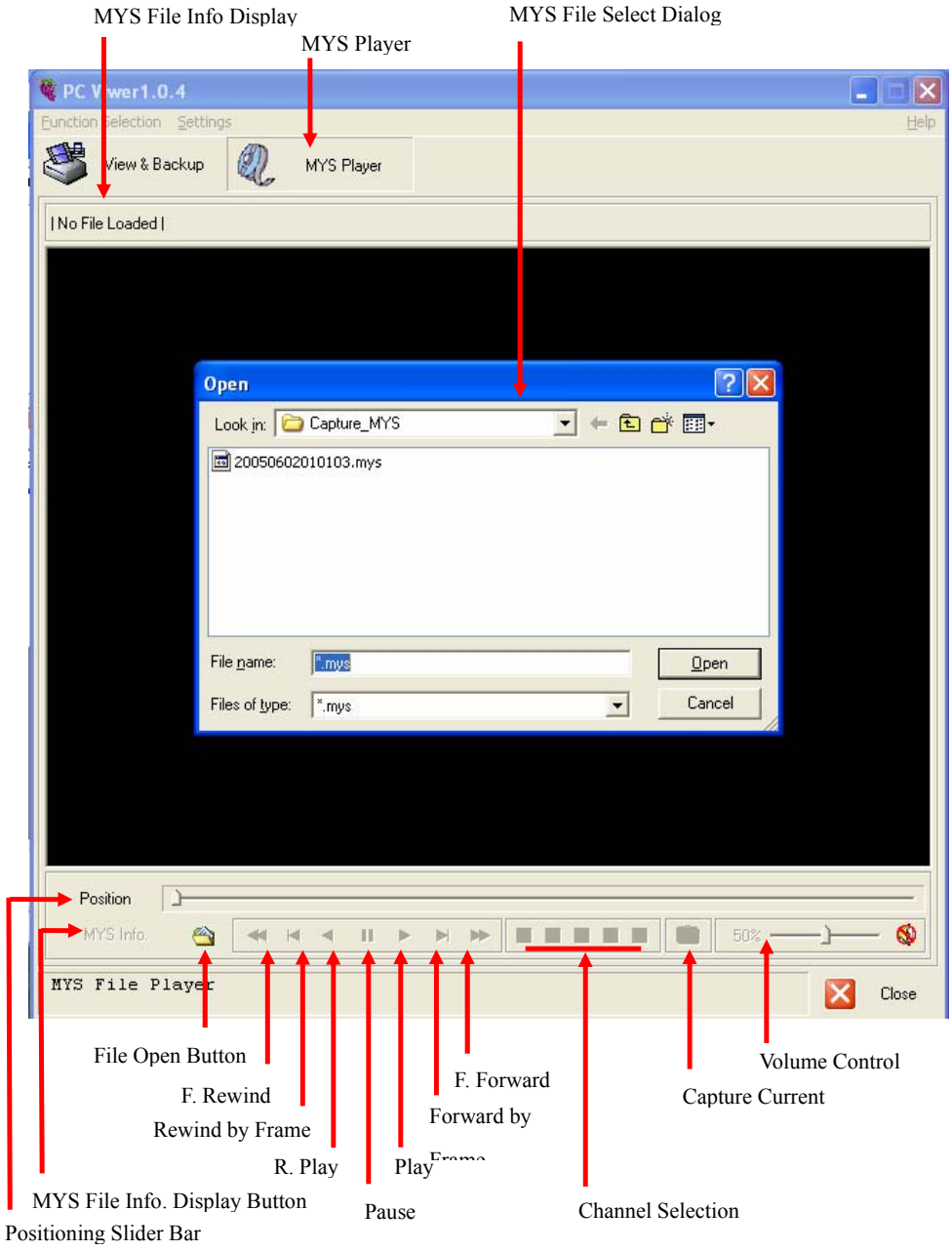
C-9 Direct Access

The Direct Access function enables you to go directly to a specific video frame location by entering a specific location number in the Direct Access box and pressing “GO”.

5.3 MYS PLAYER

A. User Interface

The application's default page is displayed below with screen functions identified:



B. FUNCTIONS

B-1 File Open

Open a MYS file by clicking the File Open Button.

B-2 Playback

Automatically displays beginning of recorded video stream and allows selection of video frames or playback streams within the designated valid stream range.

B-3 Channel Selection

The default screen display channel setting is ALL CHANNELS, which displays up to all four channels simultaneously. Single channels can be selected from the individual channel buttons.

B-4 Capture Current Stream Button (BMP)

To capture a BMP. image, press the Capture Current Screen button. This will capture the current screen and save it as BMP file to the user designated folder location in the setup settings.

B-5 Volume Control

Enable/disable audio sounding by clicking “MUTE” button and adjust volume by adjusting Volume slider bar.

B-6 Position Slider Bar

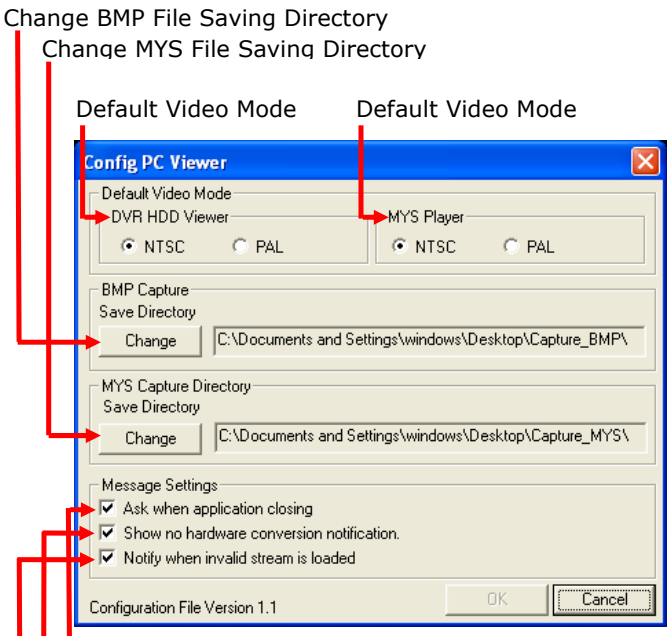
Scan images using the Slider Bar.

B-7 MYS File Info. Display Button

Displays File Name, Video Mode, File Size, and Frame Count & Current Position at upper left corner.

5.4 APPLICATION SETTING

A. USER INTERFACE



B. FUNCTIONS:

B-1 Default Video Mode Setting
Choose the default video standard.
1. NTSC/PAL Setting for HDD PCVIEWER
2. NTSC/PAL Setting for MYS Player

B-2 To change BMP File Saving Directory
Press “Change” Button to change the directory where the new BMP capture file will be stored.

B-3 To change MYS File Saving Directory
Press “Change” button to change the directory where the new MYS stream file will be stored.

B-4 To close application
Enable/Disable the confirm message box to close application.

B-5 To change No Hardware; Color Conversion Support Notification Enable/Disable the notification message when the application detects the graphic device installed is not supporting hardware-aided YUV to RGB color conversion.

B-6 Change Invalid Stream Loading Notification
Enable/Disable the warning message when the application [HDD PC Viewer] loads invalid stream data from a hard disk.

6. SPECIFICATIONS

Image System		NTSC	PAL
Resolution	Display	720 × 480	720 × 576
	Record	640 × 224	640 × 272
Video Input		BNC × 4	
Video Output		BNC × 1	
Display Frame		4 × 30 fields/sec	4 × 25 fields/sec
Recording Frame Rate (QUAD)		Max 30 fps	Max 25 fps
Recording Frame Rate (MUX)		Max 30 / 4 fps	Max 25 / 4 fps
Storage Media		1 SATA Hard Disk	
Image Format		M-JPEG	
Compress Rate		Low 8K bytes/field Medium 10K bytes/field High 15K bytes/field Best 20K bytes/field	
Recording Mode		Manual / Alarm / Schedule	
Playback Speed		Fast Forward ×4 ×8 ×16 Fast Reverse ×32 Frame by Frame Forward Playback	
Image Adjustable		Brightness / Contrast / Hue	
On Screen Display & Setup		Time/Date/Setup Menu	
Password Control		One for HDD format	
Event List		Max. 63 records/HDD	
Motion Detection		Yes	
Buzzer		Yes	
Video loss		Yes	
Key Lock		Yes	
IR Remote Controller		Yes	
Backup		USB (PC Link)	
VGA out put		Optional	
Power Input		DC 12 V / 3A	
Dimensions (W×H×D)		218 (W) × 44 (H) × 202 (D) mm	
Operation Temperature		0 – 45 degrees C	

7. RECORDING TIME ESTIMATES

Note: recording time is directly related to recording speed and recording quality. The tables below are estimates based on HDD size and recording quality/resolution settings.

Record Mode=MUX (yields longer recording times)

Record Mode=QUAD (yields shorter recording time)

80GB H.D.D Record Mode=MUX										
NTSC Field/Sec		**30/FS**	**15/FS**	**10/FS**	**7/FS**	**5/FS**	**4/FS**	**3/FS**	**2/FS**	**1/FS**
Recording Quality	**maximum**	38 hr	76 hr	114 hr	160hr	228hr	285hr	380 hr	570 hr	1140hr
	high	57 hr	114Hr	171hr	240hr	342hr	428hr	570 hr	855 hr	1710hr
	medium	71 hr	142hr	213hr	298hr	426hr	532hr	710 hr	1065hr	2130hr
	low	100hr	200hr	300hr	420hr	600hr	750hr	1000hr	1500hr	3000hr

80GB H.D.D Record Mode=QUAD										
NTSC Field/Sec		**30/FS**	**15/FS**	**10/FS**	**7/FS**	**5/FS**	**4/FS**	**3/FS**	**2/FS**	**1/FS**
Recording Quality	**maximum**	19 hr	38 hr	57 hr	80 hr	114hr	142hr	190hr	285hr	570 hr
	high	29 hr	57 Hr	87 hr	120hr	171hr	214hr	285hr	426hr	870 hr
	medium	35 hr	70 hr	105 hr	148hr	213hr	266hr	350hr	532hr	1050hr
	low	50 hr	100 hr	150 hr	208hr	300hr	375hr	500hr	750hr	1500hr

80GB H.D.D Record Mode=MUX									
PAL Field/Sec		**25/FS**	**12/FS**	**8/FS**	**6/FS**	**4/FS**	**3/FS**	**2/FS**	**1/FS**
Recording Quality	**maximum**	35 hr	72 hr	110 hr	145 hr	218 hr	291 hr	437 hr	875 hr
	high	46 hr	95 hr	144 hr	190 hr	287 hr	383 hr	575 hr	1150 hr
	medium	67 hr	139 hr	209 hr	278 hr	418 hr	558 hr	837 hr	1675 hr
	low	98 hr	204 hr	306 hr	408 hr	612 hr	816 hr	1225hr	2450hr

80GB H.D.D Record Mode=QUAD									
PAL Field/Sec		**25/FS**	**12/FS**	**8/FS**	**6/FS**	**4/FS**	**3/FS**	**2/FS**	**1/FS**
Recording Quality	**maximum**	12 hr	25 hr	37 hr	50 hr	75 hr	100 hr	150 hr	300 hr
	high	16 hr	33 hr	50 hr	66 hr	100 hr	133 hr	200 hr	400 hr
	medium	23 hr	48 hr	72 hr	95 hr	143 hr	191 hr	287 hr	575 hr
	low	34 hr	70 hr	106 hr	141 hr	212 hr	283 hr	425 hr	850 hr

8. HDD/FLASH COMPATIBLE TABLE

Hard disk should be connected, and the capacity of hard disk is from 40GB to 500GB. When you restart the power of this appliance after install or replace new hard disk, it will format automatically. We tested the following model for your reference:

Restricted :

Brand	Model	Capacity	Speed (rpm)
WD	All Series	All Series	All Series
Seagate	ST3250620A	250GB	7200 rpm
Seagate	ST3250620AV	250GB	7200 rpm

Note SAMSUNG/WD are not suggested to use.

Suggested:

Brand	Model	Capacity	Speed (rpm)
Hitachi	HDS728080PLAT20	80GB	7200 rpm
Hitachi	HDS721616PLAT80	160GB	7200 rpm
Hitachi	HDT722516DLAT80	160GB	7200 rpm
Hitachi	HDT722520DLAT80	200GB	7200 rpm
Hitachi	HDT725025VLAT80	250GB	7200 rpm
Hitachi	HDT722525DLAT80	250GB	7200 rpm
Hitachi	HDS724040KLAT80	400GB	7200 rpm
Hitachi	HDS725050KLAT80	500GB	7200 rpm
Seagate	ST3802110A	80GB	7200 rpm
Seagate	ST3120814A	120GB	7200 rpm
Seagate	ST3160812A	160GB	7200 rpm
Seagate	ST3400620A	400GB	7200 rpm
Seagate	ST3500630A	500GB	7200 rpm
Preferred: For Seagate HDD the final two digits (AV) means for Security filed only			
Seagate	ST3160812AV	160GB	7200 rpm
Seagate	ST3250820AV	250GB	7200 rpm
Seagate	ST3320620AV	320GB	7200 rpm
Seagate	ST3500641AV	500GB	7200 rpm

9. HARD DRIVE INSTALLATION PROCEDURES

9.1 Loosen the screw on the cover of the DVR. There are total 8 screws as follows.

9.2 Install HDD (Master) and connect it with the power board and the main board as well as follows.

9.3 Turn the bottom of the DVR up and make 4 screws on as follows. Screws are inside the accessory kit.

9.4 After HDD installed and the power connected well, turn on the DVR. Then, OSD will display HDD information. After confirmation, screw on the cover of the DVR.

Note:

1. **Disconnect DVR from power source before HDD installation.**
2. **Set hard drive to master.**
3. **Connect the SATA cable to the HDD, and the power cable to the HDD.**